FPARS Water Type Data Dictionary

Washington State Department of Natural Resources
Forest Practices Application and Review System (FPARS)
1:24,000-scale Water Type Map Database

This information is provided as a supplement to be used in determining codes and code values used on the FPARS Water Type Map.

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SPATIAL EXTENT:
Washington State

DATA STRUCTURE QUICK REFERENCE

STREAMS

CODE NAME	DESCRIPTION
WC_LLID_NR	*Watercourse longitude/latitude identifier number*
WC_CART_FTR_CD	*Watercourse cartographic feature code*
WC_LN_TYPE_CD	*Watercourse line type code*
WC_GNIS_NM	*Watercourse GNIS (Geographic Names Information System) name*
FP_WTRTY_1975_CD	*Forest Practices water type 1975 code (Former Water Type Code)*
FP_WTRTY_1975_DT	*Forest Practices water type 1975 date (Former Water Type Date)*
FP_WTRTY_EDIT_DT	*Forest Practices water type edit date*
FP_WTRTY_CD	*Forest Practices Fish Habitat Water Type Code*
FP_MDLEXP_CD	*Forest Practices model explanation code*
FP_PERIOD_CD	*Forest Practices Periodicity Code*
FP_VER_CD	*Forest Practices Verification Code*

WATER BODIES

CODE NAME	DESCRIPTION
WB_LLID_NR	*Water body longitude/latitude identifier number*
WB_CART_FTR_CD	*Water body cartographic feature code*
WB_GNIS_NM	*Watercourse GNIS (Geographic Names Information System) name*
FP_WTRTY_CD	*Forest Practices Fish Habitat Water Type Code (Not Modeled)*
FP_WTRTY_EDIT_DT	*Forest Practices water type edit date*

STREAMS

WC_LLID_NR

Watercourse longitude/latitude identifier number (LLID). The LLID has 13 characters, is unique to each route, is based on the position of the downstream point (mouth or confluence) of the watercourse, and is created by concatenating the decimal degree values (to four places of precision) of the coordinates (without the decimal points). There is no valid default value for this field and it must be populated.

Example: 1215613480987

WC_CART_FTR_CD

Watercourse cartographic feature code. The code used to describe the cartographic feature type that the watercourse represents. These feature codes developed initially by the USGS and used on the DLG's.

Example: 412
These codes can be found in the **CART_FTR_CD** table listed at the end of this document.

WC_LN_TYPE_CD
Watercourse line type code. Code used to differentiate the primary cartographic function of the lines regardless of the hydrographic feature or hydrologic function they represent

Example: 20

These codes can be found in the **WC_LN_TYPE_CD** lookup table listed at the end of this document.

WC_GNIS_NM

Watercourse Geographic Names Information System (GNIS) name. The name of the represented feature in the USGS GNIS database (http://geonames.usgs.gov/domestic/index.html). Not all features will have a GNIS name and number, but all features with GNIS names will have GNIS numbers and vice versa. WC_GNIS_NM applies to the feature, often one route (or part of one route). Each arc composing the named feature will have the same GNIS name and number.

Example: Deschutes River

FP_WTRTY_1975_CD

Former DNR Forest Practices water type code. These are the original Water Type Classifications used in conjunction with DNR Forest Practices regulations between 1975 and (1) March 1, 2005 for Western Washington and (2) March 1, 2006 for Eastern Washington. DNR will neither keep the FP_WTRTY_1975_CD current nor synchronized with on-going changes to the new fish habitat based water typing system. The new system was implemented March 1, 2005 for Western Washington and March 1, 2006 for Eastern Washington. Generally, the FP_WTRTY_1975_CD and FP_WTRTY_1975_DT fields are not edited under the new water typing system. Neither FP_WTRTY_1975_CD nor FP_WTRTY_1975_DT are edited for new system spatial adds or tabular only database changes. For new system spatial updates these fields are edited ONLY to transfer existing values to an arc that is added as part of a spatial update to an existing stream (a realign). Basically, once the new scheme was turned "on" the FP_WTRTY_1975_CD was frozen. Except as noted above, FP_WTRTY_1975_CD will be blank or 0 for any new arc added since the implementation dates. Note: the water typing system was developed solely for the regulation of forest practices (WAC 222).

Example: 1

These codes can be found in the **FP_WTRTY_1975_CD** lookup table listed at the end of this document.

FP_WTRTY_1975_DT

Former DNR Forest Practices water type code edit date. These are the most recent dates between 1975 and (1) March 1, 2005 for Western Washington, or (2) March 1, 2006 for Eastern Washington that a water classification of a stream segment was officially approved by DNR, Forest Practices. DNR will neither keep the FP_WTRTY_1975_DT current nor synchronized with on-going changes to the new fish habitat based water typing system. The new system was implemented March 1, 2005 for Western Washington and March 1, 2006 for Eastern Washington. Generally, the FP_WTRTY_1975_CD and FP_WTRTY_1975_DT fields are not edited under the

new water typing system. Neither FP_WTRTY_1975_CD nor FP_WTRTY_1975_DT are edited for new system spatial adds or tabular only database changes. For new system spatial updates these fields are edited ONLY to transfer existing values to an arc that is added as part of a spatial update to an existing stream (a realign). Basically, once the new scheme was turned "on" the FP_WTRTY_1975_DT was frozen. Except as noted above, FP_WTRTY_1975_DT will be blank or 0 for any new arc added since the implementation dates. Note: the water typing system was developed solely for the regulation of forest practices (WAC 222).

Example 19920101

FP_ WTRTY_EDIT_DT

Internal DNR date field used to capture when an individual DNR employee last edited the database record. Used in conjunction with the new habitat based water typing system.

Example: 20040606

FP_ WTRTY_CD

DNR Forest Practices Fish Habitat Water Type Code. Implemented for Western Washington March 1, 2005 and for Eastern Washington March 1, 2006. Used in conjunction with WAC 222-16-030 and 222-16-031 and the Washington Forest Practices Board Manual. For stream features, this Code is based on a multi-parameter, field verified geographic information system (GIS) logistic regression model. The water typing model is based on thousands of field surveys of fish presence and fish habitat. Other model parameters are gradient, elevation, basin size and average annual precipitation derived from the US Geological Survey's digital elevation model (DEM) for the state of Washington. Technical considerations required that the model be developed on a "virtual" stream network system derived from the DEM database. The DEM-based model results were then transferred to the DNR's hydrographic GIS "map" (WCHYDRO) in order to implement the new habitat based water types.

These codes can be found in the **FP_WTRTY_CD** lookup table listed at the end of this document.

FP_MDLEXP_CD

The FP_MDLEXP_CD (Forest Practices Model Explanation Code) is used to explain how each stream segment within WCHYDRO was assigned the habitat-based water type (FP_WTRTY_CD) value. [See Forest Practices Rules: WAC 222-16-030, 222-16-031]. Because not all streams were coded directly as a result of the fish habitat modeling process, an additional coding scheme was needed to distinguish modeled from non-modeled streams and other hydrographic features. For example, an "F " stream with an FP_MDLEXP_CD code of "F1" was modeled as fish habitat because a match was found on the "virtual" DEM-modeled stream network. However, an "F" stream with an FP_MDLEXP_CD of "F2" was not modeled because there was no matching "virtual" stream. Used only in conjunction with the Forest Practices Fish Habitat Water Type System.

Example: F2

These codes can be found in the **FP_MDLEXP_CD** lookup table listed at the end of this document.

FP_ VER_CD

The FP_VER_CD is used to capture how a particular water type was determined and attributed to a stream segment. These codes will only exist for Hydrography added or modified after March 1, 2005 for Western Washington and March 1, 2006 for Eastern Washington. Used only in conjunction with the Forest Practices Fish Habitat Water Type System.

Example: p

These codes can be found in the **FP_VER_CODE** lookup table listed at the end of this document.

FP_ PERIOD_CD

Indicates periodicity based on WAC 222-16-030 (3) and (4) and 222-16-031 (4) and (5). Used only in conjunction with the Forest Practices Fish Habitat Water Type System.

WATER BODIES

WB_LLID_NR

Water body longitude/latitude identifier number (LLID). All polygonal features are assigned an LLID. These include water bodies, islands, and dams, etc. The LLID has 13 characters, is based on the position of the polygon label point, and is created by concatenating the decimal degree values (to four places of precision) of the coordinates (minus the decimal points). LLID numbers are generally unique across WBHYDRO. A tiny precentage (0.06%) on July 11, 2006) of WB_LLID_NRs have a frequency greater than 1. These records represent features made up of more than one polygon. For example, a stream may be made up of several polygons connected by a single arc watercourse; the polygons will all have identical WB_LLID_NRs. There is no valid default value for this field and it must be populated.

Example: 1234567890987

WB_CART_FTR_CD

Water body cartographic feature code. The code used to describe the cartographic feature type that the water body polygon represents. These feature codes developed initially by the USGS and used on the DLG's.

Example: 412
These codes can be found in the **CART_FTR_CD** table listed at the end of this document.

WB_GNIS_NM

Water body GNIS (Geographic Names Information System) name. The name of the water body as contained within the USGS GNIS database (http://geonames.usgs.gov/domestic/index.html). Not all features will have a GNIS name and number, but all features with GNIS names will have GNIS numbers and vice versa.

Example: Ross Lake

FP_ WTRTY_CD

DNR Forest Practices Fish Habitat Water Type Code for water bodies. Features in the Water Bodies layer are not part of the habitat-modeling process and are typed according to size. This code is based on the water types defined in WAC 222-16-030 and 222-16-031 and in the Shoreline Management Act.

Type S water bodies have an area of at least 20 acres in size. Type F water bodies are less than 20 acres but larger than 0.5 acres. Water bodies less than 0.5 acres are coded "N" unless there is a type S or F stream entering and exiting it. Those water bodies will be coded according to the stream type. Field verified habitat information may override designations based on acreage.

Example: F

These codes can be found in the **FP_WTRTY_CD** lookup table listed at the end of this document. Codes valid for lakes include S, F, N, X

NOTE: Wetlands are not typed in the new habitat-based system. See WAC 222-16-035 for the wetland typing system.

FP_ WTRTY_EDIT_DT

Internal DNR date field used to capture when an individual DNR employee last edited the database record. Used in conjunction with the new habitat based water typing system.

Example: 20060606

Code tables

CART_FTR_CODE

100	Alkali flat
101	Reservoir
103	Glacier or permanent snowfield
105	Area subject to inundation
106	Fish hatchery or farm
107	Industrial water impoundment
109	Sewage disposal pond or filtration bed
110	Tailings pond
111	Marsh, wetland, swamp, bog
114	Cranberry bog
115	Flats (tidal, mud, sand, gravel)
116	Bay, estuary, gulf, ocean or sea
117	Shoal
300	spring or seep
400	Rapids
401	Falls
402	Gravel pit or quarry filled with water
406	Dam or weir
407	Canal lock or sluice gate
408	Spillway
410	Exposed rock
412	Stream/river
414	Ditch/canal
415	Aqueduct
417	Penstock
418	Siphon
419	Channel in water area
420	Wash or ephemeral drain
421	Lake or pond
422	Reef
423	Sand or gravel in open water
425	Fish ladder
466	Pier, jetty, breakwater, dock, wharf or causeway
901	Impoundment
902	Island
999	Unknown/Unclassified

WC_LN_TYPE_CD

5	Not displayed on FPARS maps. Artificial connector. A watercourse line projected for connectivity purposes. For example, a stream not connected by an above-ground channel system to a shoreline or downstream network due to infiltration may be connected to the larger network by segments with WC_LN_TYPE_CD = 5 in order to maintain network connectivity for modeling or future linear referencing purposes.
10	Single. Single-line representing a watercourse segment
20	Interior - in water body. Watercourse interior line represented within a water body (lake, reservoir, wet area, etc.)
21	Interior - double banked stream. Watercourse interior line represented within a double banked stream polygonal watercourse (for example, the Columbia River).

30	Watercourse/body perimeter. Watercourse segment coincident with a water body perimeter (for example, when a stream and wet area bank share the same line).
99	Unknown/Unclassified.

FP_WTRTY_1975_CD

Type 1 Water	All waters, within their ordinary high-water mark, as inventoried as "shorelines of the state" under chapter 90.58 RCW.
Type 2 Water	Segments of natural waters which are not classified as Type 1 Water and have a high fish, wildlife or human use.
Type 3 Water	Segments of natural waters which are not classified as Type 1 or Type 2 Waters and have a moderate to slight fish, wildlife, or human use.
Type 4 Water	All segments of natural waters within the bankfull width of defined channels that are perennial nonfish habitat streams.
Type 5 Water	All segments of natural waters within the bankfull width of defined channels that are not Type 1, 2, 3, or 4 Waters.
Type 9 Water	Unclassified water feature.

FP_ WTRTY_CD

S	Designated Shoreline of the State as defined in WAC 222-16-030.
F	Fish Habitat as defined in WAC 222-16-030 (2)
N	Non-fish Habitat as defined in WAC 222-16-030 (3) and (4)
U	Unknown, untyped, un-modeled hydrographic feature
X	Mapped feature having no water type designation (e.g. pipeline, wet area)

FP_MDLEXP_CD

S1	Shorelines Management Act (SMA): Shorelines of the State designation.
S2	Shorelines of Statewide Significance (Shoreline Management Act (SMA); RCW (90.58.030). "S+" Waters
S3	Interior arc of type "S" lake or reservoir.
F1	Modeled as fish habitat, occurring downstream of a modeled end of fish habitat point.

F2 Un-modeled. Match could not be found between this stream segment and DEM-generated stream model during initial model implementation. DNR approved field survey data and/or former water type indicates fish use/fish habitat either prior to model implementation or later.

F3 Interior arc of type "F" lake, pond, reservoir or other water impoundment.

F4 Mapping anomaly prevented normal model/coding implementation. Former water type indicated "fish use" or is associated with other fish use/fish habitat waters. Most common occurrences were in channelized streams (e.g. irrigation ditches, canals) or un-modeled streams with former water typing inconsistencies.

F5 Fish hatchery or campground diversion waters and former type 2 water courses as defined by WAC 222-16-031 (2).

F6 Fish bearing/fish habitat stream added after water type model implementation.

F7 Model Override: Approved post 1996 hydro updates from field surveys submitted on Water Type Modification Forms or other approved field survey data place fish-bearing/fish habitat waters upstream of modeled end of fish habitat point.

F8 Outside of modeled area. Classified previously as having fish use (e.g. type 3). (For use in Eastern Washington only)

N1 Modeled as non-fish habitat, occurring upstream of a modeled end of fish habitat point.

N2 Un-modeled stream. Match could not be found between this stream segment and DEM-generated stream model during initial model implementation. DNR approved field survey data and/or former water type classification indicates non-fish use/non-fish habitat either prior to model implementation or later.

N3 Interior arc of type N lake, pond, reservoir or other water impoundment.

N4 Mapping anomaly prevented normal model/coding implementation. Former water type indicated "no fish use" or is associated with other non-fish use/non-fish habitat

N5 Non-fish bearing/non-fish habitat stream added after model implementation.

N6 Former untyped/unknown hydrographic stream feature (type 9) occurring upstream of a modeled end point. May or may not have a matching DEM-modeled stream.

N7 Model Override: Approved post 1996 survey/hydro update submitted on Water Type Modification Forms or other approved surveys indicate end of fish-bearing/fish habitat waters downstream of modeled end of habitat point.

N8 Outside of modeled area. Classified previously as having no fish use (type 4,5). (For use in Eastern Washington only).

U1 Un-modeled stream that was formerly untyped/unknown and remains unverified (type 9).

U2 Cartographic stream link that connects a typed stream or stream network to a hydrographic source feature. May or may not be a subsurface flow.

U3 Verified stream addition or confirmation of former untyped/unknown mapped stream (type 9). Stream exists on ground, but water type has not been assigned.

U4 Outside of modeled area. Classified previously as untyped/unknown (type 9). (For use in Eastern Washington only).

X1 Mapped hydrographic features having no water type designation.

FP_PERIOD_CD

p	Perennial waters that do not go dry during any time of a year of normal rainfall.
s	Seasonal Waters which surface flow is not present for at least some portion of a normal year of rain.
u	Unknown/Unclassified

FP_VER_CODE

p	Water Type based upon physical criterion.
b	Water Type based upon biological assessment.
n	Water type not verified by either physical or biological assessment.
u	Water type determination assessment is unknown.